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(71)(72) Applicants and Inventors: YASSINZADEH, Zia [US/US]; 11240 Mount Hamilton Road, San Jose, CA 95140 (US). LINGANE, Paul, J. [US/US]; 2613 Read Avenue, Belmont, CA 94002 (US).		Published With international search report.	
(74) Agents: HANN, James, F. et al.; Townsend, and Townsend and Crew, Steuart Street Tower, One Market Plaza, San Francisco, CA 94105-1492 (US).			

(54) Title: SAMPLE COLLECTION AND MANIPULATION APPARATUS AND METHOD

(57) Abstract

A sample collection and manipulation apparatus (2), typically used for collecting and manipulating a blood sample and measuring a component of that sample with the use of a reagent or ion-selective electrodes, includes a body member (4, 6, 8) defining a thermal pressure chamber (22) and a sample port (10). A measurement chamber (26) is formed along a fluid passageway (42, 16, 24) connecting the thermal pressure chamber with the sample port. The air within the thermal pressure chamber is preheated (54, 56, 60, 62, 63/65) to reduce its density and the sample port is then placed in contact with the liquid. As the gas cools, a partial vacuum is created within the thermal pressure chamber to draw a liquid sample through the passageway and into the measurement chamber. Appropriate analyte measurement techniques, such as optical or electrochemical, can then be carried out. Applications include the testing of blood gases, glucose, hemoglobin, electrolytes, coagulation and therapeutic drugs.

